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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,456	09/29/2004	Nicolas Guelton	Q82542	7544

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SUITE 800
WASHINGTON, DC 20037

EXAMINER

YEE, DEBORAH

ART UNIT	PAPER NUMBER
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1742

MAIL DATE	DELIVERY MODE
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05/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/501,456

Applicant(s)

GUELTON ET AL.

Examiner

Deborah Yee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7-14-04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 to 5, 7, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,925,500 (KISHIDA et al).

3. US Patent '500 on lines 40 to 66 in column 7 and lines 1 to 11 in column 8 and lines 36 to 45 in column 6 discloses a copper-rich carbon steel processed in substantially the same manner as claimed by applicant comprising the steps of continuous casting thin strip, cooling, hot rolling at a temperature at 1080C or below (overlaps with claimed range of 1000C or below), and coiling at 100 to 350C . Also similar to the present invention, prior art teaches maintaining Cu in solid solution throughout hot rolling and coiling.

4. US Patent '500 in Table 1 discloses steel alloys having compositions that meet the recited claims, in particular the Mn/Si ratio at 3 or greater recited by claim 2 is met. Also lines 40 to 45 in column 7 teach continuous casting, which is conventionally performed with two internally cooled rolls rotating in opposite direction as recited by claim 3, and can be subjected to direct hot rolling similar to the on-line casting and rolling as recited by claim 4.

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5. US Patent '500 on line 20-21 in column 7 teaches cooling at a rate of 30C/sec, and appears to meet the V equation recited by claim 5, since applicant's specification teaches cooling at 25C/sec. Moreover, prior art cooling rate after hot rolling would be expected to be similar to present invention since the same objective of maintaining Cu in solid solution is achieved.
6. In regard to claim 7, US Patent'500 on line 11 of column 8 coils at 100 to 350C (overlaps recited range of less than 300C) and in Table 2 of columns 11-12 discloses heat treating at 600C (within recited range of 400 to 700C).
7. Even though US Patent'500 as recited by claim 17 does not teach skin pass rolling, such would not be a patentable difference. Note that skin pass rolling is a well known metallurgical technique to further straighten and remove scale from worked and heat treated steel; and hence would be a matter of choice well within the skill of the artisan to incorporate.
8. In regard to claim 18, US Patent '500 produces a steel product process in essentially the same manner as claimed by applicant.
9. Claims 1 to 5, 7, and 9 to 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,961,793 (KISHIDA et al).
10. US Patent '793 on lines 20 to 68 in column 5, lines 1 to 30 in column 6, and lines 26 to 40 in column 4 teaches a copper-rich carbon steel processed in substantially the same manner as claimed by applicant comprising the steps of continuous casting thin strip, cooling, hot rolling at a temperature at 1080C or below (overlaps with claimed range of 1000C or below), and coiling at 450C or below, followed by cold rolling,

recrystallization annealing wherein the copper is in solid solution at 750C or above and forced cooling at below 450C within 1 minute, and then aging at 450 to 700C to precipitate copper. Similar to the present invention, prior art teaches maintaining Cu in solid solution during hot rolling, coiling and recrystallization annealing.

11. US Patent '793 in Table 1 of column 8 discloses steel alloys having compositions that meet the recited claims, in particular the Mn/Si ratio at 3 or greater recited by claim 2 is met. Also lines 22 to 24 in column 5 teach continuous casting, which is conventionally performed with two internally cooled rolls rotating in opposite direction as recited by claim 3, and can be subjected to direct hot rolling similar to the on-line casting and rolling recited by claim 4.

12. Even though cooling rate V as recited by claim 5 is not taught by prior art, such rate would be expected since similar to present invention, the same objective of maintaining Cu in solid solution invention is achieved.

13. In regard to claim 7, US Patent '793 on line 31 of column 5 coils at 450C or lower (overlaps recited range of less than 300C) and on lines 21-22 in column 6 disclose heat treating at 450 to 700C (within the recited range of 400 to 700C).

14. In regard to claims 9 to 12, US Patent '793 on line 31 of column 5 coils at 450C or lower (overlaps recited range of Ms and lower than 300C) and on lines 17 to 30 in column 6 teach cold rolling, recrystallization annealing in a temperature range where the copper is in solid solution, forced cooling to keep the copper in solid solution and precipitation tempering at 450 to 700C (within the recited range of 600 to 700C in continuous annealing installation and 400 to 700C in batch annealing installation). Even

though prior art does not specify batch or continuous annealing, such processes are conventionally known in the metallurgical art and would be a matter of choice well within the skill of the artisan to incorporate

15. US Patent '793 steel contains 0.0005 to 0.015 % C and 1 to 2.2 % Cu that overlap with the C and Cu ranges recited by claims 14 and 15.

16. Even though US Patent '793 does not teach cutting strip and drawing prior to precipitation hardening as recited by claim 16, such would be a matter of choice well within the skill of the artisan to incorporate depending on the desired product sought which is productive of no new and unexpected results.

17. Even though US Patent '793 as recited by claim 17 does not teach skin pass rolling, such would not be a patentable difference. Note that skin pass rolling is a well known metallurgical technique to further straighten and remove scale from worked and heat treated steel; and hence would be a matter of choice well within the skill of the artisan to incorporate.

18. In regard to claim 18, US Patent '500 produces a steel product process in essentially the same manner as claimed by applicant.

19. Claims 6, 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,925,500 (KISHIDA et al) or US Patent 4,961,793 (KISHIDA et al).
as applied to the claims above, and further in view of US Patent 6,676,774 (MATSUOKA et al).

20. US Patent '500 and US Patent '793 closely meet the present invention process for the reasons stated above but does not use a copper-rich steel containing 0.1 to 1%

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C. It would, however, be well within the skill of the artisan to substitute somewhat different but analogous copper-rich steels to prior art process that contain higher C of 0.1% or more, which are well known in the art, such as the steel of US Patent '774.

21. The unapplied references have been cited to further depict the state of the art in copper-rich steels.

Information Disclosure Statement

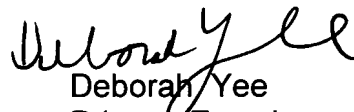
22. The information disclosure statement filed July 14, 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00am-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Deborah Yee
Primary Examiner
Art Unit 1742

DY